

WHAT IS CLAIMED IS:

1. A system comprising:

- a signal controlled oscillator comprising a signal input, a power input, and an oscillation output;
- a rectifier comprising an input coupled to the oscillation output, and a reference output to provide a rectified signal;
- a threshold detect module comprising a first input coupled to the reference output, and a threshold indicator output; and
- a voltage supply module comprising a select input coupled to the threshold indicator output, and a voltage supply output coupled to the power input of the signal controlled oscillator to supply one of a plurality of voltages based on a value received at the select input.

2. The system of claim 1, wherein the plurality of voltages are predefined and selected based upon a value received at the select input.

3. The system of claim 1, wherein the plurality of voltages are to be determined based upon a value received at the select input.

4. The system of claim 1, wherein the threshold detect module further comprises a second input coupled to receive a first mode indicator where in a first value of the first mode indicator is to identify a first specific threshold to be detected.

5. The system of claim 4, wherein the threshold detect module is to provide a first predefined value at the threshold indicator output when the rectified signal is below the first threshold value, and to provide at least a second predefined value at the threshold indicator output when the rectified signal is above the first threshold value.

6. The system of claim 5, wherein the voltage supply module further comprises a mode input coupled to receive a second mode indicator to identify a first predefined voltage reference to be provided at the voltage supply output in response to receiving the first predefined value.

7. The system of claim 6, wherein the first mode indicator and the second mode indicator are the same mode indicator.
8. The system of claim 6, wherein the first threshold value is to identify a start-up condition and the first predefined voltage reference is predetermined to start-up the signal controlled oscillator.
9. The system of claim 5, wherein the threshold detect module is to further identify a second threshold value to be detected response to receiving a second value of the first mode indicator.
10. The system of claim 9, wherein, in response to receiving the second value of the first mode indicator, the threshold detect module is to provide the first predefined value at the threshold indicator output before the specific threshold value is detected, and at least the second predefined value at the threshold indicator output after the first specific threshold is detected.
11. The system of claim 10, wherein the voltage supply module is to further provide the first predefined voltage reference in response to receiving the first predefined value when a first value of the second mode indicator is received, and to provide a second predefined voltage reference when a second value of the second mode indicator is received.
12. The system of claim 1, wherein the signal controller, rectifier, threshold detect module, and voltage supply module are formed on a common substrate.
13. The system of claim 1, wherein the system comprises an RF communication system.

14. The system of claim 1, further comprising:
 - a phase detector having a first input to receive an input signal, a reference input coupled to the oscillation output, and an output coupled to the signal input.
15. The system of claim 14, further comprising:
 - a filter module coupled between the output of the phase detector and the signal input of the signal controlled oscillator.
16. A method comprising :
 - monitoring within a System On a Chip (SOC) device an oscillation output of a signal controlled oscillator of the SOC device to determine an operating condition of the signal controlled oscillator;
 - selecting within the SOC a first supply voltage to provide the signal controlled oscillator when the operating condition is in a first state; and
 - selecting within the SOC a second supply voltage to provide the signal controlled oscillator when the operating condition is in a second state.
17. The method of claim 16, wherein the first state is indicative of a start-up condition, and the first supply voltage is larger than the second supply voltage.
18. The method of claim 16, further comprising:
 - selecting within the SOC a third supply voltage to provide the signal controlled oscillator when the operating condition is in a second state.
19. The method of claim 16, wherein the operating condition is in the first state when a rectified representation of the oscillation output is below a threshold value.

20. The method of claim 19, wherein the operating condition is in the second state when the rectified representation of the oscillation output is above the threshold value.

21. The method of claim 20, wherein the only operating condition below the threshold value is the first state, and the only operating condition above the threshold value is the second state.

22. The method of claim 20, wherein the only operating condition below the threshold value is the first state, and operating conditions above the threshold value comprise a plurality of states.

23. The method of claim 22, further comprising:
selecting a different supply voltage for each of the plurality of states.

24. The method of claim 16, further comprising
monitoring a reset indicator to at least partially determine the operating
condition.

25. The method of claim 24, wherein the reset indicator is a power-on-reset
indicator.

26. A method comprising:

monitoring an oscillation output of a signal controlled oscillator to determine an operating condition of the signal controlled oscillator;

selecting a first supply voltage to provide the signal controlled oscillator when the operating condition is in a first state, wherein the operating condition is in the first state when a rectified representation of the oscillation output is below a threshold value; and

selecting a second supply voltage to provide the signal controlled oscillator when the operating condition is in a second state, wherein the operating condition is in the second state when the rectified representation of the oscillation output is above the threshold value.